

Appl. No.: 09/807,343
Preliminary Amendment dated May 7, 2003

JMYT-237US

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 24. (Cancelled)

25. (New) A system for treating combustion exhaust gas, which system comprising: a catalyst effective to promote oxidation of at least NO to NO₂; a filter downstream of the oxidation catalyst, which filter being effective to collect soot and hold it for combustion reaction with the NO₂ in the gas; a NOx absorber downstream of the filter, which NOx absorber is charged with solid adsorbent; means for introducing intermittently a regenerant of the absorber, which means being effective to inject a NOx-specific reactant upstream of the absorber; and a catalyst system effective to promote reactions of hydrocarbons (HC) and CO with O₂ to H₂O and CO₂ and to treat NOx to N₂, wherein said catalyst system is at least one of: (1) associated with the absorber; or (2) located downstream of the absorber.

26. (New) A system according to claim 25, wherein the catalyst system is associated with the absorber.

27. (New) A system according to claim 25, wherein the catalyst system is disposed in a separate bed downstream of the absorber.

28. (New) A system according to claim 25, wherein the NOx absorbent comprises at least one of: (a) compounds of alkali metals, alkaline earth metals, rare earth metals and transition metals or a mixed oxide of any two or more thereof; and (b) zeolites, carbons and/or oxides.

29. (New) A system according to claim 25, wherein the NOx absorbent comprises a mixed oxide selected from the group consisting of Ba-Cu-O and MnO₂-BaCuO₂.

30. (New) A system according to claim 25, wherein the catalyst system comprises at least one of vanadia/titania and one or more platinum group metal.

31. (New) A system according to claim 25, wherein the injection means is arranged to inject the reactant upstream of the filter.

32. (New) A system according to claim 31, wherein the injection means is arranged to inject the reactant upstream of the oxidation catalyst.

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33.1 (New) A system according to claim 28, wherein the injection means is arranged to inject the reactant downstream of the filter.

34.10 (New) A system according to claim 28, wherein the filter is catalysed.

35.11 (New) A system according to claim 28, wherein the injection means is for injecting ammonia, hydrazine, urea or aqueous urea solution.

36.12 (New) A process for treating combustion exhaust gas containing CO, hydrocarbons (HC), NO, O₂, soot and non-reactive gases, comprising the steps of: (i) catalysing oxidation of NO to NO₂; (ii) collecting soot on a filter; (iii) combusting the collected soot by reaction with NO₂; (iv) removing NO_x from the product of step (iii) by contacting a regenerable NO_x absorbent with gas containing NO_x; (v) regenerating the absorbent intermittently by injecting a NO_x-specific reactant upstream of the absorbent; and (vi) at least during step (v), contacting a catalyst system effective to promote reactions of HC and CO with O₂ to H₂O and CO₂ and to react NO_x to N₂ with the gas product of step (v).

37.13 (New) A process according to claim 36, wherein the reactant is injected into: (a) lean exhaust gas as generated by the engine or the product of a preceding step of exhaust treatment; or (b) gas made leaner when the NO_x-specific reactant is injected with air.

38.14 (New) A process according to claim 36, wherein the NO_x-specific reactant is ammonia or hydrazine and is injected as such or as a precursor compound decomposable thereto *in situ*.

39.15 (New) A process according to claim 36, wherein the precursor is urea or aqueous urea solution.

40.16 (New) A process according to claim 36, wherein the exhaust gas is the product of combustion of fuel containing less than 50 ppm w/w of sulphur.

41.17 (New) A system according to claim 28, wherein the NO_x absorbent comprises a mixed oxide selected from the group consisting of at least one of CeO₂, Y-Ba-Cu-O and Y-Sr-Co-O.